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Application No. 10/574,752 - - - - 2

AMENDMENTS TO THE CLAIMS

1 (currently amended). [[A]] An oral DNA vaccine suitable for eliciting an immune response against cancer cells that overexpress Fra-1, the vaccine comprising a pharmaceutically acceptable carrier containing attenuated *Salmonella typhimurium* bacteria comprising a plasmid a polynucleotide construct operably encoding a polyubiquitinated Fra-1 protein and a plasmid encoding IL-18 in a pharmaceutically acceptable carrier.

2 - 5 (canceled).

6 (currently amended). The DNA vaccine of claim [[5]] 1 wherein the attenuated *Salmonella typhimurium* [[is]] bacteria comprise a doubly attenuated *aroA* *dam* *S. typhimurium* strain.

7 (currently amended). The DNA vaccine of claim 1 wherein the ~~polynucleotide construct encodes a~~ Fra-1 protein having has an amino acid sequence selected from the group consisting of SEQ ID NO: 2 and SEQ ID NO: 4.

8 (currently amended). The DNA vaccine of claim 1 wherein the ~~polynucleotide construct encodes IL-18 having~~ has an amino acid sequence selected from the group consisting of SEQ ID NO: 6 and SEQ ID NO: 8.

9 (currently amended). The DNA vaccine of claim 1 wherein the ~~polynucleotide construct comprises a polynucleotide encoding a human or murine Fra-1 protein, and having plasmid encoding polyubiquitinated Fra-1 comprises~~ a nucleic acid sequence selected from the group consisting of SEQ ID NO: 1 and SEQ ID NO: 3.

10 (currently amended). The DNA vaccine of claim 1 wherein the ~~polynucleotide construct comprises a polynucleotide encoding a human or murine IL-18, and having plasmid encoding IL-18 comprises~~ a nucleic acid sequence selected from the group consisting of SEQ ID NO: 5 and SEQ ID NO: 7.

11 (currently amended). The DNA vaccine of claim 1 wherein the attenuated *Salmonella typhimurium* bacteria further comprise a plasmid encoding polynucleotide construct further encodes IL-12.

12 - 16 (canceled).

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17 (currently amended). The DNA vaccine of claim ~~[[16]]~~ 1 wherein the attenuated *Salmonella typhimurium* ~~[[is]]~~ bacteria comprise a doubly attenuated *aroA*⁻ *dam*⁻ *S. typhimurium* strain.

18 - 22 (canceled).

23 (currently amended). The DNA vaccine of claim 1 wherein the ~~polynucleotide construct comprises an~~ plasmid encoding polyubiquinated Fra-1 ~~polynucleotide having~~ has a nucleic acid sequence selected from the group consisting of SEQ ID NO: 1, and SEQ ID NO: 3 and ~~[[an]]~~ the plasmid encoding IL-18 ~~polynucleotide having~~ has a nucleic acid sequence selected from the group consisting of SEQ ID NO: 5, and SEQ ID NO: 7.

24 - 25 (canceled).

26 (currently amended). A method of inhibiting tumor growth in a mammal having a Fra-1-overexpressing tumor comprising the step of orally administering to the mammal an effective immunological response eliciting amount of a DNA vaccine comprising a pharmaceutically acceptable carrier containing attenuated *Salmonella typhimurium* bacteria comprising a polynucleotide construct operably encoding a plasmid encoding a polyubiquinated Fra-1 protein and a plasmid encoding IL-18 in a pharmaceutically acceptable carrier, whereby the mammal exhibits an immune response elicited by the vaccine and specific to tumor cells in the Fra-1-overexpressing tumor.

27 (currently amended). The method of claim 26 wherein the ~~polynucleotide construct encodes a~~ Fra-1 protein ~~having~~ has an amino acid sequence selected from the group consisting of SEQ ID NO: 2 and SEQ ID NO: 4.

28 (currently amended). The method of claim 26 wherein the polynucleotide construct encodes IL-18 ~~having~~ has an amino acid sequence selected from the group consisting of SEQ ID NO: 6 and SEQ ID NO: 8.

29 (currently amended). The method of claim 26 wherein the ~~polynucleotide construct comprises a polynucleotide encoding a human or murine~~ plasmid encoding the polyubiquinated Fra-1 protein; ~~and having~~ comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO: 1 and SEQ ID NO: 3.

30 (currently amended). The method of claim 26 wherein the ~~polynucleotide construct comprises a polynucleotide encoding a human or murine~~ plasmid encoding IL-18 ~~[[,]]~~

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~~and having~~ comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO: 5 and SEQ ID NO: 7.

31 - 35 (canceled).

36 (currently amended). The method of claim [[35]] 26 wherein the attenuated *Salmonella typhimurium* [[is]] bacteria comprise a doubly attenuated *aroA⁻ dam⁻ S. typhimurium strain*.

37 (canceled).

38 (original). An article of manufacture comprising a vaccine of claim 1 packaged in a hermetically sealed, sterile container, the container having a label affixed thereto, the label bearing printed material identifying the vaccine and providing information useful to an individual administering the vaccine to a patient.

39 (original). An isolated plasmid vector comprising a polynucleotide construct operably encoding a polyubiquitinated Fra-1 protein.

40 (original). The plasmid vector of claim 39 wherein the Fra-1 protein is a human or murine Fra-1 protein.

41 - 42 (canceled).

43 (currently amended). [[A]] An isolated transformed host cell transfected with a polynucleotide construct operably encoding a Fra-1 protein and IL-18 transfected by attenuated *Salmonella typhimurium* bacteria comprising a plasmid encoding a polyubiquitinated Fra-1 protein and a plasmid encoding IL-18.

44 (canceled).

45 (currently amended). The isolated transformed host cell of claim 43 wherein the Fra-1 protein is a human or murine Fra-1 protein.

46 (currently amended). The isolated transformed host cell of claim 43 wherein the IL-18 is human or murine IL-18.

47 - 52 (canceled).

53 (currently amended). A method of vaccinating a mammal against a Fra-1-overexpressing cancer, the method comprising the step of orally administering to the mammal an effective immunological response eliciting amount of a DNA vaccine comprising a polynucleotide construct operably encoding a Fra-1 protein and IL-18 in a pharmaceutically

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~~acceptable carrier, whereby the mammal exhibits an immune response elicited by vaccine and specific to tumor cells of claim 1.~~

54 - 57 (canceled).

58 (currently amended). The method of claim ~~[[57]]~~ 53 wherein the attenuated *Salmonella typhimurium* bacteria in the vaccine ~~[[is]]~~ comprise a doubly attenuated *aroA⁻ dam⁻ S. typhimurium* strain.

59 (original). The method of claim 53 wherein the mammal is a human.

60-65 (canceled).